

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Res'd PCT/PTO 14 DEC 2004
10/516327

RECEIVED

01 OCT 2004

WIPO

PCT

Applicant's or agent's file reference 27-001-PCT		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/16208	International filing date (day/month/year) 11 June 2003 (11.06.2003)	Priority date (day/month/year) 21 June 2002 (21.06.2002)	
International Patent Classification (IPC) or national classification and IPC IPC(7): H04B 7/14 and US Cl.: 370/279			
Applicant WIDEFI, INC.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of ___ sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 20 January 2004 (20.01.2004)		Date of completion of this report 20 September 2004 (20.09.2004)	
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer Phirin Sam Telephone No. (571) 272-3082	

Form PCT/IPEA/409 (cover sheet)(July 1998)

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☒ the description:
pages 1-18 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☒ the claims:
pages 19-29 as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☒ the drawings:
pages 1-4 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☐ the sequence listing part of the description:
pages NONE as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. STATEMENT**

Novelty (N)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-33</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-33 meet the criteria set out in PCT Article 33(2)-(4), because:

Regarding claims 1-15, the prior art does not teach or fairly suggest a receiver for receiving signals on at least two bi-directional communication frequencies simultaneously.

Regarding claims 16 and 17, the prior art does not teach or fairly suggest a repeater for improving a communication link between the first and the second communication devices, the repeater including a receiver capable of simultaneously receiving a signal on either of the first and the second bi-directional communication frequencies.

Regarding claims 18-21, the prior art does not teach or fairly suggest a receiver for receiving a signal on either of at least first and second bi-directional communication frequencies simultaneously.

Regarding claims 22-26, the prior art does not teach or fairly suggest a repeater capable of communicating between the base unit and the client unit using the time division duplex protocol on one of at least first or second bi-directional communication frequencies different from that used by the client unit, and of receiving a signal on either of the at least first and second bi-directional communication frequencies simultaneously.

Regarding claim 27, the prior art does not teach or fairly suggest the wireless coverage extension device including an indicator for providing indication when received signal levels from at least one of the station devices are sufficient for communication between at least one of the first and second wireless station devices and the wireless coverage extension device.

Regarding claims 28-30, the prior art does not teach or fairly suggest the first bi-directional communication link operating on a first frequency channel utilizing a first antenna of a specific polarization, and the second bi-directional communication link operating on a second frequency channel utilizing a second antenna with a polarization orthogonal to the first antenna.

Regarding claims 31 and 32, the prior art does not teach or fairly suggest performing a splitting function on the signal, coupling the splitting function to delay function, and performing the delay function in parallel with the detection function.

Regarding claim 33, the prior art does not teach or fairly suggest the first bi-directional communication link operating on a first frequency channel utilizing a first directional antenna, and the second bi-directional communication link operating on a second frequency channel utilizing a second directional antenna.

----- NEW CITATIONS -----

NONE

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Rec'd PCT/PTO 14 DEC 2004

20/516327

RECEIVED

16 AUG 2004

WIPO

PCT

Applicant's or agent's file reference 27-001-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/16208	International filing date (day/month/year) 11 June 2003 (11.06.2003)	Priority date (day/month/year) 21 June 2002 (21.06.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): H04B 7/14 and US Cl.: 370/279		
Applicant WIDEFL, INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 1 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 20 January 2004 (20.01.2004)	Date of completion of this report 30 July 2004 (30.07.2004)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Phirin Sam <i>f. Perini</i> Telephone No. (703) 308-9294

I. Basis of the report**1. With regard to the elements of the international application:***

- ☒ the international application as originally filed.
- ☒ the description:
pages 1-18 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☒ the claims:
pages 19-29, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☒ the drawings:
pages 1-4, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.
- ☐ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages NONE
- ☐ the claims, Nos. NONE
- ☐ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. STATEMENT**

Novelty (N)

Claims 8-15, 20, 21, 23-26, and 29-32 YESClaims 1-7, 16, 17-19, 22, 27, 28, and 33 NO

Inventive Step (IS)

Claims 8-15, 20, 31, and 32 YESClaims 1-7, 16-19, 21-30, and 33 NO

Industrial Applicability (IA)

Claims 1-33 YESClaims NONE NO**2. CITATIONS AND EXPLANATIONS**

Please See Continuation Sheet

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

1. Claims 16-19, 22, 27, 28, and 33 lack novelty under PCT Article 33(2) as being anticipated by Atkinson (U.S. Patent 5,883,884).

Atkinson discloses the invention (claims 18, 19, 27, 28, and 33) as claimed including a repeater for a network including at least first and second bi-directional communication frequencies (see Fig. 7, col. 8, lines 26-28), comprising:

- (a) a receiver for receiving a signal on either of at least first and second bi-directional communication frequencies simultaneously (see Fig. 7, element 702, col. 8, lines 48-51).
- (b) a transmitter for transmitting the received signal on at least first and second bi-directional communication frequencies (see Fig. 7, element 701, col. 8, lines 55-58).
- (c) an antenna operationally connected to the receiver and the transmitter, wherein the transmitter and the receiver operate on different frequencies and use a time division duplex protocol (see Fig. 7, element 794, col. 8, line 23).

Regarding claims 16, 17, and 22, Atkinson discloses a network operating on at least first and second bi-directional communication frequencies,

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

comprising:

- (a) a base unit for transmitting and receiving data on the first and second bi-directional communication frequencies using a TDD protocol on either of the at least first and second bi-directional communication frequencies (see Fig. 2, col. 5, lines 45-48, 52-67).
- (b) a client unit capable of transmitting and receiving data on the first and second bi-directional communication frequencies using the TDD protocol on either of the at least first or second bi-directional communication frequencies (see Fig. 5, col. 5, lines 16-30).
- (c) a repeater capable of communicating between the base unit and the client unit using the TDD protocol on one of the at least first or second bi-directional communication frequencies different from that used by the client unit (see Fig. 7, col. 8, lines 19058).

2. Claims 1-7 lack novelty under PCT Article 33(2) as being anticipated by Urrable et al (U.S. Patent 5,446,770).

Regarding claims 1-7, Urrable et al discloses an apparatus for facilitating wireless communication in a network between a first communication device and a second communication device, the network including at least two bi-directional communication frequencies each using a TDD format of data transmission, comprising:

- (a) a receiver for receiving signals on the at least two bi-directional communication frequencies simultaneously (see Figs. 1 and 3, element 4, col. 5, lines 13-20).
- (b) a signal detector operatively coupled to the receiver for determining if a signal is present on at least one of the at least two bi-directional frequencies (see Fig. 9, element 46, col. 9, lines 26-35).
- (c) a frequency converter for converting the signal present on one of the bi-directional frequencies to a converted signal on the other of the bi-directional frequencies (see Figs. 1, 4, and 5, element 3, col. 4, lines 51-56).
- (d) a transmitter for transmitting the converted signal on the other of the bi-

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

directional frequencies (see Fig. 1, col. 4, line 67, col. 5, lines 1-4).

3. Claims 21 and 23-26, an inventive step under PCT Article 33(3) as being

4. obvious over Atkinson (U.S. Patent 5,883,884) in view of Urrable et al (U.S. Patent 5,446,770).

Regarding claims 21 and 23-26, Atkinson discloses all the limitations. On the other hand, Atkinson does not disclose a signal detector operatively coupled to the receiver for determining if a signal is present on at least one of the at least first and second bi-directional communication frequencies and a frequency converter for converting a signal present on the first bi-directional frequency to a converted signal on the second bi-directional communication frequency. However, Urrable et al discloses the signal detector and the frequency converter (see Figs. 1, 4, 5, and 9, elements 3 and 46, col. 4, lines 1-4, and col. 9, lines 26-35). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the signal detector and frequency converter teaching by Urrable et al with Atkinson. The motivation for doing so would have been to provide to prevent deterioration in the receiving performance (see col. 2, lines 9-10). Therefore, it would have been obvious to combine Urrable et al and Atkinson to obtain the invention as specified in the claims 21 and 23-26.

5. Claims 29 and 30 lack an inventive step under PCT Article 33(3) as being obvious over Atkinson (U.S. Patent 5,883,884) in view of Sugar et al (U.S. Patent 2002/0061031).

Regarding claims 29 and 30, Atkinson discloses all the limitations. On the other hand, Atkinson does not disclose the first and second bi-directional communication links utilize 802.11 protocol. However, Sugar et al disclose the communication links utilize 802.11 protocol (see Fig. 1, page 3, lines [0041], [0042], and page 6, [0070], [0074], [0075], [0077]). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the communication links utilize 802.11 teaching by Sugar et al with Atkinson. The motivation for doing so would have been to provide to optimize the throughput of information. Therefore, it would have been obvious to combine Sugar et al and

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Atkinson to obtain the invention as specified in the claims 29 and 30.

6. Claims 8-15, 20, 31, and 32 meet the criteria set out in PCT Article 33(2)-(3), because:

Regarding claims 8-15, the prior art does not teach or fairly suggest the first and second intermediate frequencies is coupled to respective first and second additional splitters, each includes a first output connected to a delay circuit.

Regarding claim 20, the prior art does not teach or fairly suggest receiver including a signal detector operatively coupled to the circulator that determines if the signal is present on one of the at least first and second bi-directional communication frequencies.

Regarding claims 31 and 32, the prior art does not teach or fairly suggest performing a splitting function on the signal, coupling the splitting function to a delay function, and performing the delay function in parallel with the detection function.

----- NEW CITATIONS -----

US 5,883,884 A (ATKINSON) 16 March 1999, see Fig. 7, col. 5, lines 45-48, 52-67, col. 7, lines 16-30, and col. 8, lines 19-58.

US 5,446,770 A (URABLE et al) 29 August 1995, see Figs. 1, 3, 4, 5, and 9, col. 4, lines 1-4, 51-56, 67, col. 5, lines 1-4, 13-20, and col. 9, lines 26-35.

US 2002/0061031 A1 (SUGAR et al) 23 May 2002, Fig. 1, page 3, lines [0041], [0042], page 6, lines [0070], [0074], [0075], and [0077]).